

Missouri Seat Belt Usage Survey  
for  
2017

Conducted for the Highway Safety & Traffic Division of the  
Missouri Department of Transportation  
by  
The Missouri Safety Center  
University of Central Missouri

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## EXECUTIVE SUMMARY

The National Highway Traffic Safety Administration (NHTSA) issued new Uniform Criteria for State Observational Surveys of Seat Belt Use, with the Final Rule being published in the Federal Register (Vol. 76, No. 63, Friday, April 1, 2011, Rules and Regulations, pp. 18056 – 18059).

The Uniform Criteria were revised in an effort to standardize the requirements for the state-wide observing and reporting of seat belt use for drivers and right front-seat passengers. The new requirements contain numerous important changes to include: county selection based upon fatality-based criterion rather than the population-based criterion of the past, the use of a weighted calculation based upon several factors, a change in the standard error from 5.0 percent to 2.5 percent, and the involvement of a qualified statistician in the sampling design and annual reporting aspects of the survey. Missouri's methodology was approved by NHTSA March 29, 2013.

The following report documents the 2017 results of Missouri's annual state-wide seat belt use survey. The principal objective being to establish a seat belt usage rate of drivers and right front-seat passengers from which strategies targeting educational and enforcement occupant protection programs can be developed. Missouri's sampling plan addresses both the need for a state-wide seat belt usage rate (required by NHTSA) and a usage rate for each of the seven Missouri Department of Transportation (MoDOT) Districts. A regional coalition consisting of traffic safety experts exists within each of the seven MoDOT District's and is tasked with the development of a regionally based strategy to reduce crash-related fatalities. The ability to provide each regional coalition with a district seat belt use estimate would be helpful in the establishment of programs to improve seat belt use.

Missouri's observational survey of seat belt usage took place June 5<sup>th</sup> through June 18<sup>th</sup>, 2017. The Highway Safety and Traffic Division of MoDOT contracted with the Missouri Safety Center located at the University of Central Missouri to help develop, implement, and analyze the 2017 observational survey with the statistical expertise being provided by Dr. Donald N. Nimmer, Director Emeritus of Institutional Research at the University of Central Missouri.

*Based upon a total of 115,902 vehicle occupants observed, the 2017 seat belt use rate on Missouri roadways was found to be 84.0 percent with a standard error of 0.2111. Of these 115,902 occupants, seat belt use could not be determined for 515 drivers and right front seat passengers, therefore, the non-response or unknown use rate for the 515 occupants was 0.44 percent, and does not exceed the 10 percent requirement established by NHTSA.*

The 1998 seat belt use survey was done as the base line; then each survey after and up through the 2012 seat belt use survey was conducted as a replication of the former and all were probability based surveys with the data collection locations representative of 85 percent of the State's population and was, at that time, in compliance with the guidelines recommended by NHTSA. However, due to the changes in methodology required by NHTSA, the "Final Rule", and Missouri, the 2013 through 2017 survey locations now account for 85 percent of the crash-related fatalities in the State, and for this reason the data collected during the 2013, 2014, 2015, 2016 and the 2017 survey may not be entirely comparable to those data collected prior to 2013.

Table 1 indicates the weighted results of observations from 1998 through 2017.

**Table 1: Observations and Usage Rate by Year, 1998-2017**

Year	Usage Rate	Vehicles Observed	Total Observation (Driver & Passenger)
2017	84.0%	91,850	115,902
2016	81.4%	96,705	123,678
2015	79.9%	91,463	118,081
2014	78.82%	90,015	117,297
2013	80.07%	82,128	108,096
2012	79.39%	92,860	119,474
2011	78.95%	97,646	127,720
2010	76.03%	96,160	126,419
2009	77.18%	94,799	122,962
2008	75.78%	88,980	116,274
2007	77.16%	87,543	114,432
2006	75.18%	90,345	117,901
2005	77.41%	82,051	105,233
2004	75.88%	85,066	111,966
2003	72.93%	83,781	109,619
2002	69.37%	75,412	99,099
2001	67.91%	73,603	97,544
2000	67.72%	70,230	92,000
1999	60.8%	74,058	95,538
1998	60.4%	74,930	97,233

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## **METHODOLOGY**

### **County Selection**

The State of Missouri is comprised of 114 counties and the City of St. Louis. For the purpose of this study the city of St. Louis and the County of St. Louis have been combined and have been counted as a single county. A total of 63 counties account for 85 percent of the total fatalities from 2008 – 2010 and these represent the primary sampling unit (PSU). The fatality data are reported by county, in descending order of magnitude, in Appendix A, Vehicle Occupant Fatalities by County 2008-2010.

The need for both a state and MoDOT District seat belt use rate is the basis for the utilization of a multi-stage stratification sampling design. The 63 counties were first categorized by urbanicity (urban-population over 50,000 and rural-fewer than 50,000) and then by their respective MoDOT District (Northwest, Northeast, Kansas City, Central, St. Louis, Southwest and Southeast). The boundaries of these districts and the counties which lie therein are illustrated on the map in Appendix B, Top Counties with 85% of Vehicle Occupant Fatalities 2008-2010. It was further determined that two urban and two rural counties were desired for each MoDOT District which, when feasible were randomly selected, Population by Region for Top 85% Vehicle Occupant Fatality Counties 2010 Census Data is illustrated in Appendix C. The weighting assignment of each county for this random selection process was based upon the percent of vehicle miles traveled (VMT). However, an adjustment was made to both the Northwest and Northeast District's as only one urban county was available and an adjustment was made to the St. Louis District where there were no rural counties available for selection. As a result of this process 28 counties were selected for inclusion in the survey of seat belt use in Missouri.

### **Roadway Classification and Segment Selection**

Twenty roadway segments (sites) were selected in each of the 28 survey counties for a total of 560 sites; that selection was based upon eight functional road classifications identified by MoDOT (Urban Interstate, Urban Freeway/Expressway, Urban Arterial, Urban Collector, Rural Interstate, Rural Freeway/Expressway, Rural Arterial, and Rural Collector) and their relative Daily Vehicle Miles Traveled (DVMT).

The target stratification proportions for each of the 28 survey counties and the corresponding 20 Road Segments by Functional Road Type are reported by MoDOT District in Appendix D.

## **DATA COLLECTION**

### **Observers and Quality Control Monitors**

Forty-seven observers were hired and trained by the Missouri Safety Center. All but eight of the observers were experienced data collectors who had conducted seat belt observations in past surveys. The eight newly hired observers received additional and individual training from the Missouri Safety Center.

All observers and quality control monitors were trained in the appropriate procedures of Missouri's survey. Data collection protocols, scheduling, site locations, field protocols and reporting requirements were all topics covered during the training. Additionally, observers were instructed on how to proceed in conditions of bad weather or temporary traffic impediments, as well as, if an observation site needed to be abandoned due to construction activities, safety concerns, or some other legitimate reason.

The Quality Control (QC) Monitors were given additional training that focused on their specific duties. These duties included verifying that the observers were at the appropriate observation site during the assigned time, ensuring that the observers were following field protocol and offering assistance if needed. Six quality control monitors were utilized to conduct random unannounced visits to 92 of the total 560 observation sites. This represents a 16 percent monitoring rate which is well above the 5 percent rate required by NHTSA.

### **Observation and Survey Protocols**

Observation sites were geographically organized into clusters of 3, 4, or 5 sites to facilitate a reasonable driving time between locations. Each cluster was randomly assigned a single day of the week for the observation to take place. The sites within the cluster were then randomly assigned an observation period of time.

Two observers were required to work together at each observational site; one to articulate the observations for each vehicle while the other would record the observations. Each observer was given a survey schedule and a detailed map of site locations for their respective observational counties. The survey schedule specified the site number (both primary and alternate), survey route, referenced intersection, week day, start time, MoDOT District, and road type. Using the identified referenced intersection listed on the survey schedule, the observer was given the discretion to use their best judgment to select the safest location to conduct the survey. Observers recorded data from one lane (outermost or far-right lane) and one direction of travel per survey location. The observations were conducted on all days of the week during daylight hours between 7:00 a.m. and 6:00 p.m. Observations started at the predetermined assigned time and continue for exactly 45-minutes.

Observations for use, non-use or unknown use of seat belts was recorded for all drivers and front-seat outboard passengers including children riding in booster seats (excluding children in child safety seats). If there was no passenger in the right front-seat of an observed vehicle then the passenger field was left blank on the data collection form. Passenger cars, van/minivans, sport utility/crossover vehicles, pickup trucks and commercial vehicles weighing less than 10,000 pounds are all qualifying vehicles for the survey and are eligible for observation, regardless of the license state. The additional data element of driver gender was also collected and recorded. All these data were recorded on the Site Summary Form (Appendix E) and Observation Form (Appendix F).

## **RESULTS**

### **Weighted vs. Un-weighted Estimations**

Information recorded using the Site Summary and Observation Forms represent each vehicle observed. This information is considered to be raw or ***un-weighted*** data. While it might appear that using such information is the most direct and easiest to understand, it is often misleading when one considers that the observations on some road segments included every vehicle during the specified time period while significantly fewer vehicles were counted on other road segments. That is, all vehicles were counted on most two lane roads but it will not be true of multi-lane roadways where the observers included only those vehicles in the outer most right hand lane and/or, if the traffic was heavy, and recorded perhaps every third vehicle. For example, the St. Louis District comprised of primarily busy multi-lane roadways had observations totaling 16,974 vehicles at its 20 sites, while the Southwest and Southeast Districts each had nearly the same number of observations for their 20 sites but included a higher proportion of 2-lane roads. It is apparent that the data observed for the St. Louis District represent far more vehicles than do the data for the Southwest and Southeast Districts. This was compensated by considering the greater DVMT represented in the St. Louis District as compared to the Southwest and Southeast District resulting in a ***weighted*** estimation. Similarly, DVMT was used for selecting counties and observation sites by the eight functional road classifications resulting in further weighting of the estimations. NHTSA requires the estimations of seat belt use to be calculated using weighted data; this was done in Missouri using the specifications described in the approved observational plan. Each of the following sections will be identified as containing either weighted or un-weighted data.

## **STATE-WIDE RESULTS**

Observers recorded data from 560 sites within the 28 Missouri counties on 115,902 vehicle occupants of whom 91,850 were drivers and 24,052 were outboard front seat passengers; of these, belt use was unknown for 515 vehicle occupants.

### ***Weighted Data***

Tables 2-4, show only weighted data and include the relative weights of the DVMT; however they do exclude the unknowns (515 vehicle occupants).

The overall belt use rate for drivers and passengers combined is 84.0 percent (95 Percent Confidence Interval 83.8% - 84.2%). Table 2 shows the 2017 Seat Belt Use in Missouri.

**Table 2: State-wide, Seat Belt Use in Missouri**

Belt Use	Frequency	Percent	Standard Error of Percent
<b>Belted</b>	94,532	84.0	0.2111
<b>Non-Belted</b>	20,855	16.0	0.2111
<b>Total</b>	115,387	100.0	

The 2017 survey sampling plan separates the state into seven MoDOT Districts; the weighted seat belt use rates by district are shown in Table 3. The range of percent is from a low of 80.5 percent in the Kansas City District to a high of 91.9 percent in the Central District.

**Table 3: State-wide, Belt Use by MoDOT District**

District	Percent Belted
Northwest	83.9
Northeast	83.0
Kansas City	80.5
Central	91.9
St. Louis	81.4
Southwest	83.4
Southeast	88.7

Table 4 shows the overall vehicle occupant seat belt use by roadway type. Roadways are stratified using the eight functional roadway classifications of MoDOT. The roadway type Rural Interstate had the highest seat belt use whereas the roadway type Rural Collector had the lowest, at 90.1 and 64.0 percent respectively.

**Table 4: State-wide, Belt Use by Roadway Type**

Roadway Type	Percent Belted
Rural Arterial	71.7
Rural Collector	64.0
Rural Freeway/Expressway	83.9
Rural Interstate	90.1
Urban Arterial	73.9
Urban Collector	74.0
Urban Freeway/Expressway	83.5
Urban Interstate	81.1

### ***Un-weighted Data***

Tables 5-11 show only raw or un-weighted data and do not include the relative weights of the DVMT; they do include the unknowns (515 vehicle occupants). These numbers are not directly comparable to the weighted estimates.

Table 5 exhibits the un-weighted estimates of seat belt use by drivers (81.1%), passengers (83.4%), and overall (83.4%).

**Table 5: State-wide, Belt Use by Vehicle Occupant\***

Vehicle Occupant	Belted		Non-Belted		Unknown	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Drivers	74,482	81.1	17,054	18.6	314	0.3
Passengers	20,050	83.4	3,801	15.8	201	0.8
Overall	94,532	81.6	20,855	18.0	515	0.4

\* Un-weighted Data

Table 6 distributes seat belt usage by MoDOT District. Usage varied from a low of 76.4 percent in the Southwest District to a high of 88.1 percent in the Central District.

**Table 6: State-wide, Belt Use by MoDOT District\***

MoDOT District	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 115,902 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Northwest	9,856	77.7	2,775	21.9	49	0.4	12,680	10.9
Northeast	13,614	79.1	3,495	20.3	98	0.6	17,207	14.9
Kansas City	12,024	79.0	3,048	20.0	151	1.0	15,223	13.1
Central	17,940	88.1	2,389	11.7	44	0.2	20,373	17.6
St. Louis	17,525	83.3	3,487	16.6	24	0.1	21,036	18.2
Southwest	10,561	76.4	3,144	22.8	115	0.8	13,820	11.9
Southeast	13,012	83.6	2,517	16.2	34	0.2	15,563	13.4

\* Un-weighted data

Driver and Passenger seat belt use by roadway classification is displayed in Table 7 and shows that belt use was highest on Rural Interstate (88.8%). The lowest usage was recorded for the Rural Collector (66.4%) classification.

**Table 7: State-wide, Driver & Passenger Belt Use by Roadway Classification\***

Roadway Type	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 115,902 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Rural Arterial	10,504	74.2	3,595	25.4	60	0.4	14,159	12.2
Rural Collector	1,664	66.4	823	32.8	20	0.8	2,507	2.2
Rural Freeway / Expressway	8,636	81.0	1,949	18.3	74	0.7	10,659	9.2
Rural Interstate	33,880	88.8	4,180	10.9	98	0.3	38,158	32.9
Urban Arterial	12,846	72.2	4,863	27.3	84	0.5	17,793	15.4
Urban Collector	1,075	70.9	428	28.2	13	0.9	1,516	1.3
Urban Freeway / Expressway	12,095	82.6	2,465	16.8	88	0.6	14,648	12.6
Urban Interstate	13,832	84.0	2,552	15.5	78	0.5	16,462	14.2

\* Un-weighted data

The SUV had the highest seat belt usage for drivers at 86.5 percent, and trucks had the lowest seat belt usage at 69.3 percent. Table 8 shows seat belt use by drivers for vehicle type.

**Table 8: State-wide, Driver Belt Use by Vehicle Type\***

Vehicle Type	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 91,850 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Passenger Cars	29,476	82.7	6,038	16.9	124	0.4	35,638	38.8
Sport Utility/Crossover	23,594	86.5	3,611	13.2	76	0.3	27,281	29.7
Pickup Trucks	14,316	69.3	6,233	30.2	102	0.5	20,651	22.5
Van/Minivan	7,096	85.7	1,172	14.2	12	0.1	8,280	9.0

\* Un-weighted data

An additional data element collected during the survey was that of Driver Gender. Table 9 provides the seat belt use estimation by driver gender. There were more male drivers 56,138 (61.1%) observed than female drivers 35,712 (38.9%).

**Table 9: State-wide, Driver Belt Use by Gender\***

Gender	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 91,850 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Female	30,513	85.4	5,100	14.3	99	0.3	35,712	38.9
Male	43,969	78.3	11,954	21.3	215	0.4	56,138	61.1

\*Un-weighted Data

The 2017 survey was scheduled and conducted over a fourteen day period (June 5<sup>th</sup> through 18<sup>th</sup>), between the hours of 7:00 am and 6:00 pm. Table 10 shows that of the 115,902 observations of both drivers and passengers Sunday had the highest number of observations at 19,169.

**Table 10: State-wide, Driver & Passenger Belt Use by Day of the Week\***

Day of the Week	Belted		Non-Belted		Unknown		Overall Percent based upon a total of 115,902 observed	
	Freq.	Percent	Freq.	Percent	Freq.	Percent	Freq.	Percent
Monday	10,271	82.7	2,072	16.7	82	0.6	12,425	10.7
Tuesday	14,659	81.3	3,309	18.3	71	0.4	18,039	15.6
Wednesday	13,342	80.5	3,177	19.2	58	0.3	16,577	14.3
Thursday	13,743	77.8	3,828	21.7	89	0.5	17,660	15.2
Friday	13,564	82.5	2,806	17.1	78	0.4	16,448	14.2
Saturday	12,807	82.2	2,716	17.4	61	0.4	15,584	13.5
Sunday	16,146	84.2	2,947	15.4	76	0.4	19,169	16.5

\* Un-weighted Data

Tables 11, 12 and 13 display vehicles observed by time of the day, direction of traffic flow and conditions of the road.

**Table 11: State-wide, Vehicles Observed by Time of Day\***

Time	Frequency	Percent	Cumulative Frequency	Cumulative Percent
7:00 am	4,892	5.3	4,892	5.3
8:00 am	6,185	6.7	11,077	12.0
9:00 am	6,374	7.0	17,451	19.0
10:00 am	9,095	9.9	26,546	28.9
11:00 pm	8,037	8.8	34,583	37.7
12:00 pm	9,730	10.6	44,313	48.3
1:00 pm	7,729	8.4	52,042	56.7
2:00 pm	9,949	10.8	61,991	67.5
3:00 pm	10,184	11.1	72,175	78.6
4:00 pm	11,679	12.7	83,854	91.3
5:00 pm	7,996	8.7	91,850	100.0

\*Un-weighted Data

**Table 12: State-wide, Vehicles Observed by Direction of Traffic Flow\***

Flow	Frequency	Percent	Cumulative Frequency	Cumulative Percent
East	33,424	36.4	33,424	36.4
North	10,893	11.9	44,317	48.3
South	25,103	27.3	69,420	75.6
West	22,430	24.4	91,850	100.0

\*Un-weighted Data

**Table 13: State-wide, Vehicles Observed by Road Conditions\***

<b>Condition</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Frequency</b>	<b>Cumulative Percent</b>
<b>Dry</b>	86,816	97.8	86,816	97.8
<b>Wet</b>	1,916	2.2	88,732	100.0
<b>Fog</b>	0	0.0	0	0
<b>Other</b>	0	0.0	0	0

\*Un-weighted Data

Frequency Missing = 3,118

## APPENDICES

- A. Vehicle Occupant Fatalities by County, 2008-2010
- B. Top Counties with 85% of Vehicle Occupant Fatalities, 2008-2010
- C. Population by Region for Top 85% Vehicle Occupant Fatality Counties, 2010 Census Data
- D. MoDOT District by Functional Road Type
- E. Site Summary Form
- F. Observational Form

## **APPENDIX A**

### Vehicle Occupant Fatalities by County 2008 - 2010

County	2008-2010 Fatalities	3-year avg. Fatalities	% of Contribution	Accumulative Fatalities
JACKSON	161	53.67	7.82%	7.82%
ST. LOUIS	111	37.00	5.39%	13.20%
JEFFERSON	87	29.00	4.22%	17.43%
ST. LOUIS CITY	76	25.33	3.69%	21.12%
GREENE	68	22.67	3.30%	24.42%
ST. CHARLES	57	19.00	2.77%	27.18%
FRANKLIN	54	18.00	2.62%	29.81%
CLAY	51	17.00	2.48%	32.28%
NEWTON	41	13.67	1.99%	34.27%
BOONE	37	12.33	1.80%	36.07%
JASPER	36	12.00	1.75%	37.82%
PETTIS	31	10.33	1.50%	39.32%
ST. FRANCOIS	31	10.33	1.50%	40.83%
LAWRENCE	30	10.00	1.46%	42.28%
CALLAWAY	29	9.67	1.41%	43.69%
MILLER	29	9.67	1.41%	45.10%
CAMDEN	28	9.33	1.36%	46.46%
BARRY	27	9.00	1.31%	47.77%
BUTLER	27	9.00	1.31%	49.08%
COLE	27	9.00	1.31%	50.39%
HOWELL	27	9.00	1.31%	51.70%
WASHINGTON	27	9.00	1.31%	53.01%
CASS	25	8.33	1.21%	54.22%
NEW MADRID	25	8.33	1.21%	55.44%
WARREN	24	8.00	1.17%	56.60%
LACLEDE	21	7.00	1.02%	57.62%
PLATTE	21	7.00	1.02%	58.64%
SCOTT	21	7.00	1.02%	59.66%
LINCOLN	20	6.67	0.97%	60.63%
NODAWAY	20	6.67	0.97%	61.60%
BUCHANAN	19	6.33	0.92%	62.52%
DUNKLIN	19	6.33	0.92%	63.45%
PHELPS	19	6.33	0.92%	64.37%
ST. CLAIR	19	6.33	0.92%	65.29%
TEXAS	19	6.33	0.92%	66.21%
WAYNE	19	6.33	0.92%	67.14%
CHRISTIAN	18	6.00	0.87%	68.01%
MCDONALD	18	6.00	0.87%	68.88%
TANEY	18	6.00	0.87%	69.76%

***APPENDIX A, Continued***Vehicle Occupant Fatalities by County  
2008 - 2010

PEMISCOT	17	5.67	0.83%	70.58%
JOHNSON	16	5.33	0.78%	71.36%
MORGAN	16	5.33	0.78%	72.14%
PULASKI	15	5.00	0.73%	72.86%
RIPLEY	15	5.00	0.73%	73.59%
STODDARD	15	5.00	0.73%	74.32%
WEBSTER	15	5.00	0.73%	75.05%
LAFAYETTE	14	4.67	0.68%	75.73%
AUDRAIN	13	4.33	0.63%	76.36%
BARTON	13	4.33	0.63%	76.99%
CAPE GIRARDEAU	13	4.33	0.63%	77.62%
DENT	13	4.33	0.63%	78.25%
MARION	13	4.33	0.63%	78.88%
POLK	13	4.33	0.63%	79.51%
STONE	13	4.33	0.63%	80.15%
BATES	12	4.00	0.58%	80.73%
CRAWFORD	12	4.00	0.58%	81.31%
GRUNDY	12	4.00	0.58%	81.89%
MONTGOMERY	12	4.00	0.58%	82.48%
RAY	12	4.00	0.58%	83.06%
ADAIR	11	3.67	0.53%	83.59%
HENRY	11	3.67	0.53%	84.13%
SALINE	11	3.67	0.53%	84.66%
VERNON	11	3.67	0.53%	85.19%
ANDREW	10	3.33	0.49%	85.68%
DALLAS	10	3.33	0.49%	86.17%
HICKORY	10	3.33	0.49%	86.65%
PIKE	10	3.33	0.49%	87.14%
CARTER	9	3.00	0.44%	87.57%
DOUGLAS	9	3.00	0.44%	88.01%
GASCONADE	9	3.00	0.44%	88.45%
MONROE	9	3.00	0.44%	88.88%
OSAGE	9	3.00	0.44%	89.32%
RANDOLPH	9	3.00	0.44%	89.76%
BENTON	8	2.67	0.39%	90.15%
CALDWELL	8	2.67	0.39%	90.53%
COOPER	8	2.67	0.39%	90.92%
DEKALB	8	2.67	0.39%	91.31%
IRON	8	2.67	0.39%	91.70%
MARIES	8	2.67	0.39%	92.09%
OREGON	8	2.67	0.39%	92.48%
OZARK	8	2.67	0.39%	92.86%
STE. GENEVIEVE	8	2.67	0.39%	93.25%
BOLLINGER	7	2.33	0.34%	93.59%
CEDAR	7	2.33	0.34%	93.93%
LINN	7	2.33	0.34%	94.27%
MISSISSIPPI	7	2.33	0.34%	94.61%

***APPENDIX A, Continued***Vehicle Occupant Fatalities by County  
2008 - 2010

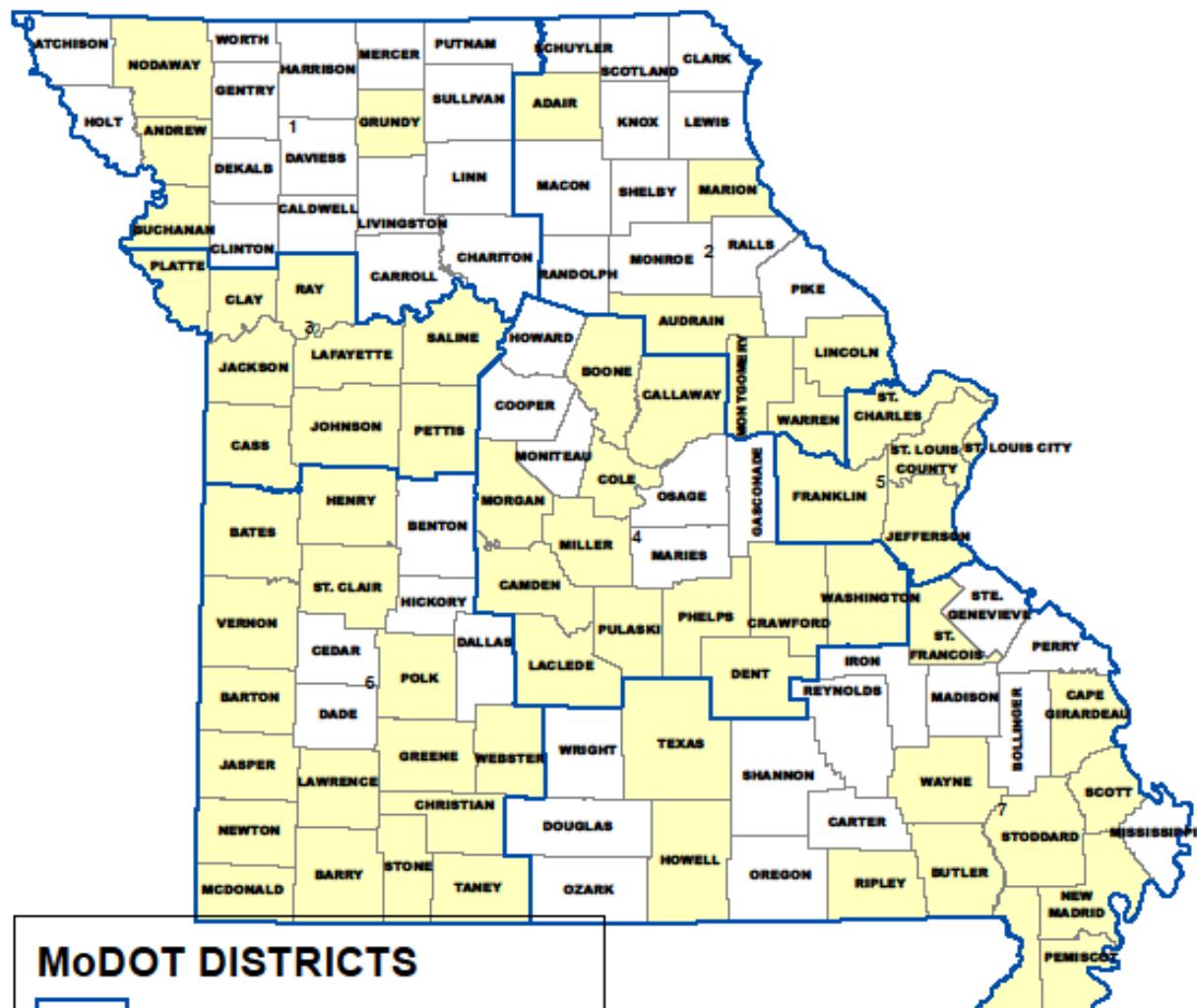
RALLS	7	2.33	0.34%	94.95%
SHANNON	7	2.33	0.34%	95.29%
DAVIESS	6	2.00	0.29%	95.58%
GENTRY	6	2.00	0.29%	95.87%
WRIGHT	6	2.00	0.29%	96.17%
CARROLL	5	1.67	0.24%	96.41%
CLINTON	5	1.67	0.24%	96.65%
DADE	5	1.67	0.24%	96.89%
HARRISON	5	1.67	0.24%	97.14%
MADISON	5	1.67	0.24%	97.38%
MONITEAU	5	1.67	0.24%	97.62%
PERRY	5	1.67	0.24%	97.86%
REYNOLDS	5	1.67	0.24%	98.11%
KNOX	4	1.33	0.19%	98.30%
LIVINGSTON	4	1.33	0.19%	98.50%
CLARK	3	1.00	0.15%	98.64%
HOWARD	3	1.00	0.15%	98.79%
MACON	3	1.00	0.15%	98.93%
SCOTLAND	3	1.00	0.15%	99.08%
SHELBY	3	1.00	0.15%	99.22%
CHARITON	2	0.67	0.10%	99.32%
HOLT	2	0.67	0.10%	99.42%
LEWIS	2	0.67	0.10%	99.51%
PUTNAM	2	0.67	0.10%	99.61%
SCHUYLER	2	0.67	0.10%	99.71%
SULLIVAN	2	0.67	0.10%	99.81%
WORTH	2	0.67	0.10%	99.90%
ATCHISON	1	0.33	0.05%	99.95%
MERCER	1	0.33	0.05%	100.00%
TOTAL	2060	686.67	100.00%	

*Includes drivers/passengers of passenger cars, station wagons, SUVs,  
van (8 or less with driver), pick-up and Single-unit Truck with 3 or more axles.*

Top 85th percentile of vehicle occupant fatalities

## **Top Counties with 85% of Vehicle Occupant Fatalities 2008 - 2010**

## **APPENDIX B**



## MoDOT DISTRICTS

 MoDOT DISTRICTS

### Counties with 85% of fatalities

Includes drivers and passengers of passenger cars, station wagons, SUVs, minivans (2 or less with drivers), minibuses, and single-unit trucks with 2 axles, 6 tires.



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## **APPENDIX C**

**POPULATION BY REGION**  
for Top 85% Vehicle Occupant Fatality Counties  
**2010 Census Data**  
Total Population 5,422,630

<b>NORTHWEST</b>			
County	Population	Urban/Rural	% Contribution
BUCHANAN	89,201	Urban	
NODAWAY	23,370	Rural	
ANDREW	17,291	Rural	
GRUNDY	10,261	Rural	
<b>TOTAL</b>			<b>2.58%</b>

<b>NORTHEAST</b>			
County	Population	Region	% Contribution
LINCOLN	52,566	Urban	
WARREN	32,513	Rural	
MARION	28,781	Rural	
ADAIR	25,607	Rural	
AUDRAIN	25,529	Rural	
MONTGOMERY	12,236	Rural	
<b>TOTAL</b>			<b>3.27%</b>

<b>KANSAS CITY</b>			
County	Population	Region	% Contribution
JACKSON	674,158	Urban	
CLAY	221,939	Urban	
CASS	99,478	Urban	
PLATTE	89,322	Urban	
JOHNSON	52,595	Urban	
PETTIS	42,201	Rural	
LAFAYETTE	33,381	Rural	
RAY	23,494	Rural	
SALINE	23,370	Rural	
<b>TOTAL</b>			<b>23.23%</b>

*APPENDIX C, Continued*

CENTRAL DISTRICT			
County	Population	Region	% Contribution
BOONE	162,642	Urban	
COLE	75,990	Urban	
PULASKI	52,274	Urban	
PHELPS	45,156	Rural	
CALLAWAY	44,332	Rural	
CAMDEN	44,002	Rural	
LACLEDE	35,571	Rural	
WASHINGTON	25,195	Rural	
MILLER	24,748	Rural	
CRAWFORD	24,696	Rural	
MORGAN	20,565	Rural	
DENT	15,657	Rural	
<b>TOTAL</b>			<b>10.53%</b>

ST. LOUIS			
County	Population	Region	% Contribution
ST. LOUIS	998,954	Urban	
ST. CHARLES	360,485	Urban	
ST. LOUIS CITY	319,294	Urban	
JEFFERSON	218,733	Urban	
FRANKLIN	101,492	Urban	
<b>TOTAL</b>			<b>36.86%</b>

SOUTHWEST			
County	Population	Region	% Contribution
GREENE	275,174	Urban	
JASPER	117,404	Urban	
CHRISTIAN	77,422	Urban	
NEWTON	58,114	Urban	
TANEY	51,675	Urban	
LAWRENCE	38,634	Rural	
WEBSTER	36,202	Rural	
BARRY	35,597	Rural	
STONE	32,202	Rural	
POLK	31,137	Rural	
MCDONALD	23,083	Rural	
HENRY	22,272	Rural	
VERNON	21,159	Rural	
BATES	17,049	Rural	
BARTON	12,402	Rural	
ST. CLAIR	9,805	Rural	
<b>TOTAL</b>			<b>15.85%</b>

*APPENDIX C, Continued*

<b>SOUTHEAST</b>			
<b>County</b>	<b>Population</b>	<b>Region</b>	<b>% Contribution</b>
CAPE GIRARDEAU	75,674	Urban	
ST. FRANCOIS	65,359	Urban	
BUTLER	42,794	Rural	
HOWELL	40,400	Rural	
SCOTT	39,191	Rural	
DUNKLIN	31,953	Rural	
STODDARD	29,968	Rural	
TEXAS	26,008	Rural	
NEW MADRID	18,956	Rural	
PEMISCOT	18,296	Rural	
RIPLEY	14,100	Rural	
WAYNE	13,521	Rural	
<b>TOTAL</b>			<b>7.68%</b>

Total Population of Top 85% Vehicle  
Occupant Fatality Counties                    5,422,630

Total State Population                        5,988,927

## APPENDIX D

### MoDOT District by Functional Road Type

#### Northwest District

<b>ANDREW (Rural) County</b>		Selected sample segments: 0 Urban, 20 Rural		
<b>Urban Subtotal</b>	<b>Urban DVMT 17,830</b>	<b>% of Total DVMT 2.68%</b>	<b>Total Segments 79</b>	<b># of Selected Road Segments – 0 Urban</b>
Interstate	1,430	0.22%	29	0
Freeway/Expressway	2,413	0.37%	6	0
Arterial	9,214	1.37%	16	0
Collector	4,773	0.72%	28	0
<b>Rural Subtotal</b>	<b>Rural DVMT 642,985</b>	<b>% of Total DVMT 97.32%</b>	<b>Total Segments 582</b>	<b># of Selected Road Segments – 20 Rural</b>
Interstate	289,777	43.85%	29	9
Freeway/Expressway	132,013	19.98%	58	4
Arterial	122,792	18.58%	105	4
Collector	98,403	14.89%	390	3
<b>Totals</b>	<b>660,815</b>	<b>100%</b>	<b>661</b>	<b>20</b>

<b>BUCHANAN (Urban) County</b>		Selected sample segments: 11 Urban, 9 Rural		
<b>Urban Subtotal</b>	<b>Urban DVMT 1,152,118</b>	<b>% of Total DVMT 59%</b>	<b>Total Segments 1,247</b>	<b># of Selected Road Segments – 11 Urban</b>
Interstate	281,872	14.38%	48	3
Freeway/Expressway	115,919	5.91%	38	1
Arterial	604,964	30.87%	730	6
Collector	149,363	7.62%	431	1
<b>Rural Subtotal</b>	<b>Rural DVMT 807,836</b>	<b>% of Total DVMT 41%</b>	<b>Total Segments 425</b>	<b># of Selected Road Segments – 9 Rural</b>
Interstate	399,236	20.37%	13	4
Freeway/Expressway	93,927	4.79%	18	1
Arterial	171,855	8.77%	57	2
Collector	142,818	7.29%	337	2
<b>Totals</b>	<b>1,959,954</b>	<b>100%</b>	<b>1,672</b>	<b>20</b>

<b>GRUNDY (Rural) County</b>		Selected sample segments: 6 Urban, 14 Rural		
<b>Urban Subtotal</b>	<b>Urban DVMT 61,609</b>	<b>% of Total DVMT 31%</b>	<b>Total Segments 238</b>	<b># of Selected Road Segments – 6 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	54,115	26.84%	135	5
Collector	7,494	3.72%	103	1
<b>Rural Subtotal</b>	<b>Rural DVMT 140,013</b>	<b>% of Total DVMT 69%</b>	<b>Total Segments 315</b>	<b># of Selected Road Segments – 14 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	95,005	47.12%	58	9
Collector	45,008	22.32%	257	5
<b>Totals</b>	<b>201,622</b>	<b>100%</b>	<b>553</b>	<b>20</b>

## **APPENDIX D, Continued**

## MoDOT District by Functional Road Type

Northwest District

NODAWAY (Rural) County		Selected sample segments: 6 Urban, 14 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 6 Urban
<b>Subtotal</b>	<b>131,761</b>	<b>28%</b>	<b>234</b>	<b>6</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	105,441	22.49%	118	5
Collector	26,320	5.61%	116	1
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 14 Rural
<b>Subtotal</b>	<b>336,993</b>	<b>72%</b>	<b>737</b>	<b>14</b>
Interstate	0	0	0	0
Freeway/Expressway	80,304	17.13%	31	3
Arterial	144,786	30.89%	129	6
Collector	111,903	23.87%	577	5
<b>Totals</b>	<b>468,754</b>	<b>100%</b>	<b>971</b>	<b>20</b>

**APPENDIX D, Continued**

MoDOT District by Functional Road Type

**Northeast District**

<b>AUDRAIN (Rural) County</b>		<b>Selected sample segments: 7 Urban, 13 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 156,533</b>	<b>% of Total DVMT 28%</b>	<b>Total Segments 297</b>	<b># of Selected Road Segments – 7 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	6,509	1.18%	4	1
Arterial	132,650	23.96%	168	5
Collector	17,374	3.14%	125	1
<b>Rural Subtotal</b>	<b>Rural DVMT 397,203</b>	<b>% of Total DVMT 72%</b>	<b>Total Segments 515</b>	<b># of Selected Road Segments – 13 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	39,552	7.14%	11	1
Arterial	230,974	41.71%	129	8
Collector	126,677	22.88%	375	4
<b>Totals</b>	<b>553,736</b>	<b>100%</b>	<b>812</b>	<b>20</b>

<b>LINCOLN (Urban) County</b>		<b>Selected sample segments: 4 Urban, 16 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 248,979</b>	<b>% of Total DVMT 23%</b>	<b>Total Segments 142</b>	<b># of Selected Road Segments – 4 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	155,106	14.08%	19	3
Arterial	73,606	6.68%	53	1
Collector	20,267	1.84%	70	0
<b>Rural Subtotal</b>	<b>Rural DVMT 852,642</b>	<b>% of Total DVMT 77%</b>	<b>Total Segments 742</b>	<b># of Selected Road Segments – 16 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	347,454	31.54%	41	6
Arterial	258,736	23.49%	154	5
Collector	246,452	22.37%	547	5
<b>Totals</b>	<b>1,101,621</b>	<b>100%</b>	<b>884</b>	<b>20</b>

<b>MARION (Rural) County</b>		<b>Selected sample segments: 6 Urban, 14 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 290,273</b>	<b>% of Total DVMT 32.40%</b>	<b>Total Segments 381</b>	<b># of Selected Road Segments – 6 Urban</b>
Interstate	28,119	3.14%	8	0
Freeway/Expressway	90,964	10.15%	32	2
Arterial	133,914	14.95%	225	3
Collector	37,276	4.16%	116	1
<b>Rural Subtotal</b>	<b>Rural DVMT 605,711</b>	<b>% of Total DVMT 67.60%</b>	<b>Total Segments 350</b>	<b># of Selected Road Segments – 14 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	406,486	45.37%	102	9
Arterial	76,942	8.59%	23	2
Collector	122,283	13.65%	225	3
<b>Totals</b>	<b>854,828</b>	<b>100%</b>	<b>442</b>	<b>20</b>

***APPENDIX D, Continued***

MoDOT District by Functional Road Type

**Northeast District**

<b>MONTGOMERY (Rural) County      Selected sample segments: 0 Urban, 20 Rural</b>				
<b>Urban Subtotal</b>	<b>Urban DVMT 0</b>	<b>% of Total DVMT 0</b>	<b>Total Segments 0</b>	<b># of Selected Road Segments – 0 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	0	0	0	0
Collector	0	0	0	0
<b>Rural Subtotal</b>	<b>Rural DVMT 854,828</b>	<b>% of Total DVMT 100%</b>	<b>Total Segments 442</b>	<b># of Selected Road Segments – 20 Rural</b>
Interstate	632,938	74.04%	20	15
Freeway/Expressway	0	0	0	0
Arterial	158,630	18.56%	172	4
Collector	63,260	7.40%	250	1
<b>Totals</b>	<b>854,828</b>	<b>100%</b>	<b>442</b>	<b>20</b>

**APPENDIX D, Continued**

MoDOT District by Functional Road Type

**Kansas City District**

<b>JACKSON (Urban) County</b>		<b>Selected sample segments: 19 Urban, 1 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 14,287,284</b>	<b>% of Total DVMT 97%</b>	<b>Total Segments 7,830</b>	<b># of Selected Road Segments – 19 Urban</b>
Interstate	5,691,632	38.52%	309	8
Freeway/Expressway	2,560,570	17.33%	320	3
Arterial	5,392,522	36.50%	5,302	7
Collector	642,560	4.35%	1,899	1
<b>Rural Subtotal</b>	<b>Rural DVMT 487,873</b>	<b>% of Total DVMT 3%</b>	<b>Total Segments 158</b>	<b># of Selected Road Segments – 1 Rural</b>
Interstate	92,399	0.63%	0	0
Freeway/Expressway	0	0	0	0
Arterial	186,111	1.26%	53	0
Collector	209,363	1.42%	105	1
<b>Totals</b>	<b>14,775,157</b>	<b>100%</b>	<b>7,988</b>	<b>20</b>

<b>JOHNSON (Urban) County</b>		<b>Selected sample segments: 4 Urban, 16 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 235,712</b>	<b>% of Total DVMT 21%</b>	<b>Total Segments 382</b>	<b># of Selected Road Segments – 4 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	52,277	4.70%	12	1
Arterial	154,998	13.94%	236	3
Collector	28,437	2.56%	134	0
<b>Rural Subtotal</b>	<b>Rural DVMT 876,055</b>	<b>% of Total DVMT 79%</b>	<b>Total Segments 703</b>	<b># of Selected Road Segments – 16 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	615,643	55.38%	205	11
Collector	260,412	23.42%	498	5
<b>Totals</b>	<b>1,111,767</b>	<b>100%</b>	<b>1,085</b>	<b>20</b>

<b>LAFAYETTE (Rural) County</b>		<b>Selected sample segments: 0 Urban, 20 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 0</b>	<b>% of Total DVMT 0</b>	<b>Total Segments 0</b>	<b># of Selected Road Segments – 0 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	0	0	0	0
Collector	0	0	0	0
<b>Rural Subtotal</b>	<b>Rural DVMT 1,468,433</b>	<b>% of Total DVMT 100%</b>	<b>Total Segments 786</b>	<b># of Selected Road Segments – 20 Rural</b>
Interstate	1,015,063	69.13%	44	14
Freeway/Expressway	0	0	0	0
Arterial	231,588	15.77%	163	3
Collector	221,782	15.10%	579	3
<b>Totals</b>	<b>1,468,433</b>	<b>100%</b>	<b>786</b>	<b>20</b>

***APPENDIX D, Continued***

MoDOT District by Functional Road Type

**Kansas City District**

<b>SALINE (Rural) County</b>		<b>Selected sample segments: 2 Urban, 18 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 117,439</b>	<b>% of Total DVMT 11%</b>	<b>Total Segments 280</b>	<b># of Selected Road Segments – 2 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	1,382	0.13%	2	0
Arterial	101,144	9.70%	162	2
Collector	14,913	1.43%	116	0
<b>Rural Subtotal</b>	<b>Rural DVMT 924,863</b>	<b>% of Total DVMT 89%</b>	<b>Total Segments 565</b>	<b># of Selected Road Segments – 18 Rural</b>
Interstate	616,278	59.13%	26	12
Freeway/Expressway	80,844	7.76%	37	2
Arterial	149,726	14.36%	101	3
Collector	78,015	7.48%	401	1
<b>Totals</b>	<b>1,042,302</b>	<b>100%</b>	<b>845</b>	<b>20</b>

**APPENDIX D, Continued**

MoDOT District by Functional Road Type

**Central District**

<b>BOONE (Urban) County</b> Selected sample segments: 12 Urban, 8 Rural				
<b>Urban Subtotal</b>	<b>Urban DVMT 2,152,936</b>	<b>% of Total DVMT 58%</b>	<b>Total Segments 1,219</b>	<b># of Selected Road Segments – 12 Urban</b>
Interstate	500,224	13.54%	26	3
Freeway/Expressway	439,898	11.91%	66	2
Arterial	933,720	25.27%	591	5
Collector	279,094	7.55%	536	2
<b>Rural Subtotal</b>	<b>Rural DVMT 1,541,770</b>	<b>% of Total DVMT 42%</b>	<b>Total Segments 625</b>	<b># of Selected Road Segments – 8 Rural</b>
Interstate	449,650	12.17%	16	2
Freeway/Expressway	0	0	0	0
Arterial	862,144	23.33%	174	5
Collector	229,976	6.22%	435	1
<b>Totals</b>	<b>3,694,706</b>	<b>100%</b>	<b>1,844</b>	<b>20</b>

<b>CALLAWAY (Rural) County</b> Selected sample segments: 4 Urban, 16 Rural				
<b>Urban Subtotal</b>	<b>Urban DVMT 462,450</b>	<b>% of Total DVMT 23%</b>	<b>Total Segments 341</b>	<b># of Selected Road Segments – 4 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	324,146	16.13%	54	3
Arterial	107,093	5.33%	172	1
Collector	31,211	1.55%	115	0
<b>Rural Subtotal</b>	<b>Rural DVMT 1,546,767</b>	<b>% of Total DVMT 77%</b>	<b>Total Segments 506</b>	<b># of Selected Road Segments – 16 Rural</b>
Interstate	873,629	43.48%	20	9
Freeway/Expressway	0	0	0	0
Arterial	454,763	22.63%	117	5
Collector	218,375	10.87%	369	2
<b>Totals</b>	<b>2,009,217</b>	<b>100%</b>	<b>847</b>	<b>20</b>

<b>COLE (Urban) County</b> Selected sample segments: 13 Urban, 7 Rural				
<b>Urban Subtotal</b>	<b>Urban DVMT 1,156,814</b>	<b>% of Total DVMT 68%</b>	<b>Total Segments 901</b>	<b># of Selected Road Segments – 13 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	543,107	31.99%	100	6
Arterial	493,670	29.08%	496	6
Collector	120,037	7.07%	305	1
<b>Rural Subtotal</b>	<b>Rural DVMT 541,078</b>	<b>% of Total DVMT 32%</b>	<b>Total Segments 404</b>	<b># of Selected Road Segments – 7 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	368,756	21.72%	107	5
Collector	172,322	10.15%	297	2
<b>Totals</b>	<b>1,697,892</b>	<b>100%</b>	<b>1,305</b>	<b>20</b>

***APPENDIX D, Continued***

MoDOT District by Functional Road Type

**Central District**

<b>PHELPS (Rural) County</b>		<b>Selected sample segments: 7 Urban, 13 Rural</b>		
<b>Urban</b>	<b>Urban DVMT</b>	<b>% of Total DVMT</b>	<b>Total Segments</b>	<b># of Selected Road Segments – 7 Urban</b>
<b>Subtotal</b>	<b>516,880</b>	<b>33%</b>	<b>395</b>	<b>7</b>
Interstate	275,314	17.34%	16	4
Freeway/Expressway	0	0	0	0
Arterial	190,077	11.97%	213	2
Collector	51,489	3.24%	166	1
<b>Rural</b>	<b>Rural DVMT</b>	<b>% of Total DVMT</b>	<b>Total Segments</b>	<b># of Selected Road Segments – 13 Rural</b>
<b>Subtotal</b>	<b>1,070,432</b>	<b>67%</b>	<b>428</b>	
Interstate	627,182	39.51%	23	8
Freeway/Expressway	0	0	0	0
Arterial	258,370	16.28%	107	3
Collector	184,880	11.65%	298	2
<b>Totals</b>	<b>1,587,312</b>	<b>100%</b>	<b>823</b>	<b>20</b>

**APPENDIX D, Continued**

MoDOT District by Functional Road Type

**St. Louis District**

<b>JEFFERSON (Urban) County</b>		<b>Selected sample segments: 14 Urban, 6 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 3,143,755</b>	<b>% of Total DVMT 68%</b>	<b>Total Segments 2,056</b>	<b># of Selected Road Segments – 14 Urban</b>
Interstate	1,128,720	24.40%	39	5
Freeway/Expressway	632,218	13.67%	98	3
Arterial	991,051	21.42%	801	4
Collector	391,766	8.47%	1,118	2
<b>Rural Subtotal</b>	<b>Rural DVMT 1,481,999</b>	<b>% of Total DVMT 32%</b>	<b>Total Segments 1,056</b>	<b># of Selected Road Segments – 6 Rural</b>
Interstate	193,211	4.18%	6	0
Freeway/Expressway	0	0	0	0
Arterial	852,267	18.42%	174	4
Collector	436,521	9.44%	876	2
<b>Totals</b>	<b>4,625,754</b>	<b>100%</b>	<b>3,112</b>	<b>20</b>

<b>FRANKLIN (Urban) County</b>		<b>Selected sample segments: 10 Urban, 10 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 1,569,426</b>	<b>% of Total DVMT 52.15%</b>	<b>Total Segments 793</b>	<b># of Selected Road Segments – 10 Urban</b>
Interstate	835,096	27.75%	37	5
Freeway/Expressway	0	0	0	0
Arterial	541,387	17.99%	399	4
Collector	192,943	6.41%	357	1
<b>Rural Subtotal</b>	<b>Rural DVMT 1,440,256</b>	<b>% of Total DVMT 47.85%</b>	<b>Total Segments 552</b>	<b># of Selected Road Segments – 10 Rural</b>
Interstate	393,015	13.06%	11	3
Freeway/Expressway	0	0	0	0
Arterial	663,872	22.06%	150	4
Collector	383,369	12.74%	391	3
<b>Totals</b>	<b>3,009,682</b>	<b>100%</b>	<b>1,345</b>	<b>20</b>

<b>ST. CHARLES (Urban) County</b>		<b>Selected sample segments: 17 Urban, 3 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 7,377,421</b>	<b>% of Total DVMT 91%</b>	<b>Total Segments 2,714</b>	<b># of Selected Road Segments – 17 Urban</b>
Interstate	2,526,967	31.21%	115	6
Freeway/Expressway	1,373,128	16.96%	56	3
Arterial	2,576,642	31.83%	1,136	6
Collector	900,684	11.12%	1,407	2
<b>Rural Subtotal</b>	<b>Rural DVMT 718,632</b>	<b>% of Total DVMT 9%</b>	<b>Total Segments 493</b>	<b># of Selected Road Segments – 3 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	48,296	0.60%	6	1
Arterial	315,011	3.89%	78	1
Collector	355,325	4.39%	409	1
<b>Totals</b>	<b>8,096,053</b>	<b>100%</b>	<b>3,207</b>	<b>20</b>

***APPENDIX D, Continued***

MoDOT District by Functional Road Type

**St. Louis District**

<b>ST. LOUIS (Urban) County/City</b>		<b>Selected sample segments: 20 Urban, 0 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 32,185,254</b>	<b>% of Total DVMT 100%</b>	<b>Total Segments 9,888</b>	<b># of Selected Road Segments – 20 Urban</b>
Interstate	15,979,945	49.65%	414	10
Freeway/Expressway	2,732,693	8.49%	190	1
Arterial	10,532,055	32.72%	4,666	7
Collector	2,940,561	9.14%	4,618	2
<b>Rural Subtotal</b>	<b>Rural DVMT 0</b>	<b>% of Total DVMT 0</b>	<b>Total Segments 0</b>	<b># of Selected Road Segments – 0 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	0	0	0	0
Collector	0	0	0	0
<b>Totals</b>	<b>32,185,254</b>	<b>100%</b>	<b>9,888</b>	<b>20</b>

**APPENDIX D, Continued**

MoDOT District by Functional Road Type

**Southwest District**

<b>GREENE (Urban) County</b>		<b>Selected sample segments: 14 Urban, 6 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 4,954,107</b>	<b>% of Total DVMT 74%</b>	<b>Total Segments 2,959</b>	<b># of Selected Road Segments – 14 Urban</b>
Interstate	531,782	7.90%	30	1
Freeway/Expressway	2,051,056	30.47%	471	6
Arterial	1,935,457	28.75%	1,343	6
Collector	435,812	6.47%	1,115	1
<b>Rural Subtotal</b>	<b>Rural DVMT 1,776,926</b>	<b>% of Total DVMT 26%</b>	<b>Total Segments 817</b>	<b># of Selected Road Segments – 6 Rural</b>
Interstate	662,524	9.84%	20	2
Freeway/Expressway	580,988	8.63%	82	2
Arterial	172,579	2.56%	107	1
Collector	360,835	5.36%	608	1
<b>Totals</b>	<b>6,731,033</b>	<b>100%</b>	<b>3,776</b>	<b>20</b>

<b>HENRY (Rural) County</b>		<b>Selected sample segments: 4 Urban, 16 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 150,358</b>	<b>% of Total DVMT 20%</b>	<b>Total Segments 197</b>	<b># of Selected Road Segments – 4 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	141,027	18.63%	154	4
Collector	9,331	1.23%	43	0
<b>Rural Subtotal</b>	<b>Rural DVMT 606,545</b>	<b>% of Total DVMT 80%</b>	<b>Total Segments 586</b>	<b># of Selected Road Segments – 16 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	480,615	63.50%	160	13
Collector	125,930	16.64%	426	3
<b>Totals</b>	<b>756,903</b>	<b>100%</b>	<b>783</b>	<b>20</b>

<b>JASPER (Urban) County</b>		<b>Selected sample segments: 11 Urban, 9 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 1,443,272</b>	<b>% of Total DVMT 52%</b>	<b>Total Segments 1,719</b>	<b># of Selected Road Segments – 11 Urban</b>
Interstate	75,692	2.72%	7	1
Freeway/Expressway	164,675	5.93%	60	1
Arterial	1,039,423	37.41%	1,111	8
Collector	163,482	5.88%	541	1
<b>Rural Subtotal</b>	<b>Rural DVMT 1,335,132</b>	<b>% of Total DVMT 48%</b>	<b>Total Segments 545</b>	<b># of Selected Road Segments – 9 Rural</b>
Interstate	587,707	21.15%	22	4
Freeway/Expressway	296,565	10.67%	35	2
Arterial	161,945	5.83%	119	1
Collector	288,915	10.40%	369	2
<b>Totals</b>	<b>2,778,404</b>	<b>100%</b>	<b>2,264</b>	<b>20</b>

## *APPENDIX D, Continued*

## MoDOT District by Functional Road Type

**Southwest District**

LAWRENCE (Rural) County		Selected sample segments: 2 Urban, 18 Rural		
Urban	Urban DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 2 Urban
<b>Subtotal</b>	<b>113,463</b>	<b>8%</b>	<b>278</b>	
Interstate	0	0	0	0
Freeway/Expressway	0	0	0	0
Arterial	101,996	7.23%	180	2
Collector	11,467	0.81%	98	0
Rural	Rural DVMT	% of Total DVMT	Total Segments	# of Selected Road Segments – 18 Rural
<b>Subtotal</b>	<b>1,297,421</b>	<b>92%</b>	<b>586</b>	
Interstate	759,726	53.85%	30	11
Freeway/Expressway	0	0	0	0
Arterial	365,603	25.91%	166	5
Collector	172,092	12.20%	390	2
<b>Totals</b>	<b>1,410,884</b>	<b>100%</b>	<b>864</b>	<b>20</b>

**APPENDIX D, Continued**

MoDOT District by Functional Road Type

**Southeast District**

<b>CAPE GIRARDEAU (Urban) County</b>		<b>Selected sample segments: 12 Urban, 8 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 1,059,415</b>	<b>% of Total DVMT 59%</b>	<b>Total Segments 885</b>	<b># of Selected Road Segments – 12 Urban</b>
Interstate	323,009	18.04%	23	4
Freeway/Expressway	107,657	6.01%	43	1
Arterial	507,525	28.35%	512	6
Collector	121,224	6.77%	307	1
<b>Rural Subtotal</b>	<b>Rural DVMT 731,068</b>	<b>% of Total DVMT 41%</b>	<b>Total Segments 591</b>	<b># of Selected Road Segments – 8 Rural</b>
Interstate	265,453	14.83%	16	3
Freeway/Expressway	0	0	0	0
Arterial	177,209	9.90%	92	2
Collector	288,406	16.11%	483	3
<b>Totals</b>	<b>1,790,483</b>	<b>100%</b>	<b>1,476</b>	<b>20</b>

<b>PEMISCOT (Rural) County</b>		<b>Selected sample segments: 1 Urban, 19 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 60,309</b>	<b>% of Total DVMT 6%</b>	<b>Total Segments 158</b>	<b># of Selected Road Segments – 1 Urban</b>
Interstate	11,144	1.06%	4	0
Freeway/Expressway	0	0	0	0
Arterial	41,889	3.98%	96	1
Collector	7,276	0.69%	58	0
<b>Rural Subtotal</b>	<b>Rural DVMT 992,771</b>	<b>% of Total DVMT 94%</b>	<b>Total Segments 512</b>	<b># of Selected Road Segments – 19 Rural</b>
Interstate	659,017	62.58%	54	13
Freeway/Expressway	101,917	9.68%	33	2
Arterial	62,823	5.97%	61	1
Collector	169,014	16.05%	364	3
<b>Totals</b>	<b>1,053,080</b>	<b>100%</b>	<b>670</b>	<b>20</b>

<b>STODDARD (Rural) County</b>		<b>Selected sample segments: 4 Urban, 16 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 145,427</b>	<b>% of Total DVMT 18%</b>	<b>Total Segments 236</b>	<b># of Selected Road Segments – 4 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	60,610	7.61%	30	1
Arterial	70,415	8.85%	124	2
Collector	14,402	1.81%	82	1
<b>Rural Subtotal</b>	<b>Rural DVMT 650,551</b>	<b>% of Total DVMT 82%</b>	<b>Total Segments 706</b>	<b># of Selected Road Segments – 16 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	240,877	30.26%	36	6
Arterial	161,020	20.23%	104	4
Collector	248,654	31.24%	566	6
<b>Totals</b>	<b>795,978</b>	<b>100%</b>	<b>942</b>	<b>20</b>

***APPENDIX D, Continued***

MoDOT District by Functional Road Type

**Southeast District**

<b>St. Francois (Urban) County</b>		<b>Selected sample segments: 11 Urban, 9 Rural</b>		
<b>Urban Subtotal</b>	<b>Urban DVMT 645,283</b>	<b>% of Total DVMT 52.47%</b>	<b>Total Segments 741</b>	<b># of Selected Road Segments – 11 Urban</b>
Interstate	0	0	0	0
Freeway/Expressway	339,504	27.60%	68	6
Arterial	224,760	18.28%	361	4
Collector	81,019	6.59%	312	1
<b>Rural Subtotal</b>	<b>Rural DVMT 584,585</b>	<b>% of Total DVMT 47.53%</b>	<b>Total Segments 324</b>	<b># of Selected Road Segments – 9 Rural</b>
Interstate	0	0	0	0
Freeway/Expressway	272,322	22.14%	31	4
Arterial	106,061	8.62%	83	2
Collector	206,202	16.77%	210	3
<b>Totals</b>	<b>1,229,868</b>	<b>100%</b>	<b>1,065</b>	<b>20</b>

**APPENDIX E, Site Summary Form**  
**Statewide Seat Belt Survey**  
 Site Summary Form

Observer: \_\_\_\_\_ County: \_\_\_\_\_

Date: \_\_\_\_\_ Time: Start \_\_\_\_\_ End \_\_\_\_\_

Road Condition:                      
 Dry     Wet     Fog     Other: \_\_\_\_\_

Observation Point (be specific):  
 \_\_\_\_\_  
 \_\_\_\_\_

Major Distractions:  
 \_\_\_\_\_  
 \_\_\_\_\_

**PLEASE COMPLETE ALL INFORMATION ABOVE THIS LINE**

Road Segment:	County:	Road Type:		Start Time:
O 1	O 01-Andrew	O Rural Interstate (RI)		O 7:00 AM
O 2	O 02-Audrain	O Rural Freeway/Expressway (RF/E)		O 8:00 AM
O 3	O 03-Boone	O Rural Arterial (RA)		O 9:00 AM
O 4	O 04-Buchanan	O Rural Collector (RC)		O 10:00 AM
O 5	O 05-Callaway	O Urban Interstate (UI)		O 11:00 AM
O 6	O 06-Cape Girardeau	O Urban Freeway/Expressway (UF/E)		O 12:00 PM
O 7	O 07-Cole	O Urban Arterial (UA)		O 1:00 PM
O 8	O 08-Franklin	O Urban Collector (UC)		O 2:00 PM
O 9	O 09-Greene			O 3:00 PM
O 10	O 10-Grundy			O 4:00 PM
O 11	O 11-Henry	Traffic Flow:		O 5:00 PM
O 12	O 12-Jackson			
O 13	O 13-Jasper	O North		
O 14	O 14-Jefferson	O East		County:
O 15	O 15-Johnson	O South		
O 16	O 16-Lafayette	O West		O Urban
O 17	O 17-Lawrence			O Rural
O 18	O 18-Lincoln			
O 19	O 19-Marion			
O 20	O 20-Montgomery	Day of the Week:		District:
O 21	O 21-Nodaway	O Sunday		O 01-Northwest
O 22	O 22-Pemiscot	O Monday		O 02-Northeast
O 23	O 23-Phelps	O Tuesday		O 03-Kansas City
O 24	O 24-Saline	O Wednesday		O 04-Central
O 25	O 25-St. Charles	O Thursday		O 05-St. Louis
O 26	O 26-St. Francois	O Friday		O 06-Southwest
O 27	O 27-St. Louis/City	O Saturday		O 07-Southeast
O 28	O 28-Stoddard			

**APPENDIX F, Observation Form**

District:	County:	O	O	0	Road Segment:	O	O	0
		O	O	1		O	O	1
O 1-NW	_____	O	O	2	_____	O	O	2
O 2-NE		O	O	3		O	O	3
O 3-KC		O	O	4		O	O	4
O 4-Central		O	O	5		O	O	5
O 5-St. Louis		O	O	6		O	O	6
O 6-SW		O	O	7		O	O	7
O 7-SE		O	O	8		O	O	8
		O	O	9		O	O	9

	Vehicle Type				Driver			Passenger				
	Car	Truck	Minivan/ Van	SUV/ Crossover	Belted Yes	No	Un- known	Gender M	F	Belted Yes	No	Un- known
1.	O	O	O	O	O	O	O	O	O	O	O	O
2.	O	O	O	O	O	O	O	O	O	O	O	O
3.	O	O	O	O	O	O	O	O	O	O	O	O
4.	O	O	O	O	O	O	O	O	O	O	O	O
5.	O	O	O	O	O	O	O	O	O	O	O	O
6.	O	O	O	O	O	O	O	O	O	O	O	O
7.	O	O	O	O	O	O	O	O	O	O	O	O
8.	O	O	O	O	O	O	O	O	O	O	O	O
9.	O	O	O	O	O	O	O	O	O	O	O	O
10.	O	O	O	O	O	O	O	O	O	O	O	O
11.	O	O	O	O	O	O	O	O	O	O	O	O
12.	O	O	O	O	O	O	O	O	O	O	O	O
13.	O	O	O	O	O	O	O	O	O	O	O	O
14.	O	O	O	O	O	O	O	O	O	O	O	O
15.	O	O	O	O	O	O	O	O	O	O	O	O
16.	O	O	O	O	O	O	O	O	O	O	O	O
17.	O	O	O	O	O	O	O	O	O	O	O	O
18.	O	O	O	O	O	O	O	O	O	O	O	O
19.	O	O	O	O	O	O	O	O	O	O	O	O
20.	O	O	O	O	O	O	O	O	O	O	O	O